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RAW SEQUENCE LISTING   DATE: 02/24/2003
PATENT APPLICATION: US/09/769,736   TIME: 08:08:08

Input Set : **A:\P21089WO.txt**
Output Set: **N:\CRF4\02242003\I769736.raw**

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        3 <110> APPLICANT: Microbial Technics Limited
        4        Le Page, Richard WF
        5        Wells, Jeremy M
        6        Hanniffy, Sean B
        8 <120> TITLE OF INVENTION: Proteins
       10 <130> FILE REFERENCE: PWC/P21089wo
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/769,736
C--> 13 <141> CURRENT FILING DATE: 2003-02-14
       15 <150> PRIOR APPLICATION NUMBER: GB 9816335.5
       16 <151> PRIOR FILING DATE: 1998-07-27
       18 <150> PRIOR APPLICATION NUMBER: US 60/125163
       19 <151> PRIOR FILING DATE: 1999-03-19
       21 <160> NUMBER OF SEQ ID NOS: 212
       23 <170> SOFTWARE: PatentIn Ver. 2.1
       25 <210> SEQ ID NO: 1
       26 <211> LENGTH: 1248
       27 <212> TYPE: DNA
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       33 aaactttggg tcccaacaga ttcaaaagcg tcttataaag caattgttaa aaaattcgag 180
       34 aaggaaaaca aaggcgttac tgtaaaaatg attgagtcta atgactccaa agctcaagaa 240
       35 aacgtaaaaa aagacccaag caaggcagcc gatgtattct cacttccaca tgaccaactt 300
       36 ggtcaattag tagaatctgg tgttatccaa gaaattccag agcaatactc aaaagaaatt 360
       37 gctaaaaacg acactaaaca atcacttact ggtgcacaat ataaagggaa aacttatgca 420
       38 ttcccatttg gtattgaatc tcaagttctt tattataata aaacaaagtt aactgctgac 480
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       40 gctaactcat atgtaacagg tcctctttt ctttctgtag gcgacacttt atttggtaaa 600
       41 tctggtgaag atgctaaagg cactaactgg ggtaatgaag caggtgtttc tgtccttaaa 660
       42 tggattgcag atcaaaagaa aaatgatggt tttgtcaact tgacagctga aaatacaatg 720
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       44 gctaaaaaag ctgtcggtga agataaaatc ggtgttgctg tttacccaac aatgaaaatc 840
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       54 <210> SEQ ID NO: 2
       55 <211> LENGTH: 415
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66 Asp Ala Ala Ser Lys Lys Thr Ile Lys Leu Trp Val Pro Thr Asp Ser
67   35   40   45
69 Lys Ala Ser Tyr Lys Ala Ile Val Lys Lys Phe Glu Lys Glu Asn Lys
70   50   55   60
72 Gly Val Thr Val Lys Met Ile Glu Ser Asn Asp Ser Lys Ala Gln Glu
73 65   70   75   80
75 Asn Val Lys Lys Asp Pro Ser Lys Ala Ala Asp Val Phe Ser Leu Pro
76   85   90   95
78 His Asp Gln Leu Gly Gln Leu Val Glu Ser Gly Val Ile Gln Glu Ile
79   100   105   110
81 Pro Glu Gln Tyr Ser Lys Glu Ile Ala Lys Asn Asp Thr Lys Gln Ser
82   115   120   125
84 Leu Thr Gly Ala Gln Tyr Lys Gly Lys Thr Tyr Ala Phe Pro Phe Gly
85   130   135   140
87 Ile Glu Ser Gln Val Leu Tyr Tyr Asn Lys Thr Lys Leu Thr Ala Asp
88 145   150   155   160
90 Asp Val Lys Ser Tyr Glu Thr Ile Thr Ser Lys Gly Lys Phe Gly Gln
91   165   170   175
93 Gln Leu Lys Ala Ala Asn Ser Tyr Val Thr Gly Pro Leu Phe Leu Ser
94   180   185   190
96 Val Gly Asp Thr Leu Phe Gly Lys Ser Gly Glu Asp Ala Lys Gly Thr
97   195   200   205
99 Asn Trp Gly Asn Glu Ala Gly Val Ser Val Leu Lys Trp Ile Ala Asp
100   210   215   220
102 Gln Lys Lys Asn Asp Gly Phe Val Asn Leu Thr Ala Glu Asn Thr Met
103 225   230   235   240
105 Ser Lys Phe Gly Asp Gly Ser Val His Ala Phe Glu Ser Gly Pro Trp
106   245   250   255
108 Asp Tyr Asp Ala Ala Lys Lys Ala Val Gly Glu Asp Lys Ile Gly Val
109   260   265   270
111 Ala Val Tyr Pro Thr Met Lys Ile Gly Asp Lys Glu Val Gln Gln Lys
112   275   280   285
114 Ala Phe Leu Gly Val Lys Leu Tyr Ala Val Asn Gln Ala Pro Ala Gly
115   290   295   300
117 Ser Asn Thr Lys Arg Ile Ser Ala Ser Tyr Lys Leu Ala Ala Tyr Leu
118 305   310   315   320
120 Thr Asn Ala Glu Ser Gln Lys Ile Gln Phe Glu Lys Arg His Ile Val
121   325   330   335
123 Pro Ala Asn Ser Ser Ile Gln Ser Ser Asp Ser Val Gln Lys Asp Glu
124   340   345   350
126 Leu Ala Lys Ala Val Ile Glu Met Gly Ser Ser Asp Lys Tyr Thr Thr
127   355   360   365
129 Val Met Pro Lys Leu Ser Gln Met Ser Thr Phe Trp Thr Glu Ser Ala

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130       370                      375                  380
132 Ala Ile Leu Ser Asp Thr Tyr Ser Gly Lys Ile Lys Ser Ser Asp Tyr
133 385                      390                  395                  400
135 Leu Lys Arg Leu Lys Gln Phe Asp Lys Asp Ile Ala Lys Thr Lys
136                      405                  410                  415
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141 <211> LENGTH: 1539
142 <212> TYPE: DNA
143 <213> ORGANISM: Streptococcus agalactiae

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147 tcacctttag tgaccttagc agaaactatt aatccagaaa caagcctgac aatggcaaca 120
148 gcatcaacag aaagttcttc tgaagcagag aaacaggaaa aaacacaacc tacagattca 180
149 gaaactgctt caccttcagc cgaaggaagt atctcaacag aaaaaacaga gattggtacg 240
150 acagagacat catcaagcaa tgaatcatca tcaagttcat cacatcaatc ttcttccaac 300
151 gaagatgcta aaacatctga ttctgcttca acagcatcta ctcctagcac taatactaca 360
152 aacagtagtc aagcagacag taagccaggt caatcaacaa agactgaatt aaaacctgag 420
153 cctaccttac cattagtaga gcctaaaata actcccgctc cgtctcagat agaaagtgtt 480
154 cagacaaatc agaatgcttc tgttcctgct ttatcctttg atgataactt attatcaaca 540
155 ccgatttcac cagtgacagc aacgccattc tacgtagaac actggtctgg tcaggatgcc 600
156 tactctcact atttattgtc acatcgttac ggtatcaaag ctgaacaatt agatgggtac 660
157 ttaaaatctt tagggattca atatgattct aatcgtatca atggtgctaa gttattacaa 720
158 tgggaaaaag atagtggttt agatgtccgt gctattgtag ctattgctgt ccttgaaagt 780
159 tcattgggaa ctcaaggagt ggctaaaatg ccaggtgcta atatgtttgg ttatggtgcc 840
160 tttgatcatg actctagcca tgctagtgct tataatgatg aagaagcaat tatgttgttg 900
161 acaaaaaata caattattaa aaacaacaac tctagctttg aaatccaaga tttgaaagca 960
162 cagaaattat cttctggaca acttaataca gttactgagg gtggtgttta ttatacagat 1020
163 aactctggaa ctggtaaacg tcgtgcccag attatggaag atttagaccg ctggattgat 1080
164 caacatggag ggacaccaga aattcctgct gccttgaaag ctttatcgac agcaagttta 1140
165 gcagatttac caagtggttt tagcttatca acagcggtta acacagctag ctatattgca 1200
166 tcaacttatc catggggtga atgtacatgg tatgtcttta ccgcgctaa agagttaggt 1260
167 tatacatttg atccatttat gggtaatggt ggagattggc aacataaggc tggctttgaa 1320
168 acaacacatt caccaaaagt aggctatgct gtatcatttt caccaggaca agctggtgct 1380
169 gatggcactt acggtcacgt agctattgtt gaagaagtta aaaaagatgg ttcagttctc 1440
170 atttcagaat ctaatgcaat gggacgtggt attgtctctt accgtacttt tagttcagca 1500
171 caagctgcac aattaactta tggtattggc cataaataa                        1539
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175 <211> LENGTH: 512
176 <212> TYPE: PRT
177 <213> ORGANISM: Streptococcus agalactiae

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184               20                  25                  30
186 Glu Thr Ser Leu Thr Met Ala Thr Ala Ser Thr Glu Ser Ser Ser Glu
187           35                  40                  45
189 Ala Glu Lys Gln Glu Lys Thr Gln Pro Thr Asp Ser Glu Thr Ala Ser
190           50                  55                  60
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195 Thr Glu Thr Ser Ser Ser Asn Glu Ser Ser Ser Ser Ser Ser His Gln
196             85              90              95
198 Ser Ser Ser Asn Glu Asp Ala Lys Thr Ser Asp Ser Ala Ser Thr Ala
199         100             105             110
201 Ser Thr Pro Ser Thr Asn Thr Thr Asn Ser Ser Gln Ala Asp Ser Lys
202     115             120             125
204 Pro Gly Gln Ser Thr Lys Thr Glu Leu Lys Pro Glu Pro Thr Leu Pro
205     130             135             140
207 Leu Val Glu Pro Lys Ile Thr Pro Ala Pro Ser Gln Ile Glu Ser Val
208 145             150             155             160
210 Gln Thr Asn Gln Asn Ala Ser Val Pro Ala Leu Ser Phe Asp Asp Asn
211             165             170             175
213 Leu Leu Ser Thr Pro Ile Ser Pro Val Thr Ala Thr Pro Phe Tyr Val
214             180             185             190
216 Glu His Trp Ser Gly Gln Asp Ala Tyr Ser His Tyr Leu Leu Ser His
217     195             200             205
219 Arg Tyr Gly Ile Lys Ala Glu Gln Leu Asp Gly Tyr Leu Lys Ser Leu
220     210             215             220
222 Gly Ile Gln Tyr Asp Ser Asn Arg Ile Asn Gly Ala Lys Leu Leu Gln
223 225             230             235             240
225 Trp Glu Lys Asp Ser Gly Leu Asp Val Arg Ala Ile Val Ala Ile Ala
226             245             250             255
228 Val Leu Glu Ser Ser Leu Gly Thr Gln Gly Val Ala Lys Met Pro Gly
229             260             265             270
231 Ala Asn Met Phe Gly Tyr Gly Ala Phe Asp His Asp Ser Ser His Ala
232     275             280             285
234 Ser Ala Tyr Asn Asp Glu Glu Ala Ile Met Leu Leu Thr Lys Asn Thr
235     290             295             300
237 Ile Ile Lys Asn Asn Asn Ser Ser Phe Glu Ile Gln Asp Leu Lys Ala
238 305             310             315             320
240 Gln Lys Leu Ser Ser Gly Gln Leu Asn Thr Val Thr Glu Gly Gly Val
241             325             330             335
243 Tyr Tyr Thr Asp Asn Ser Gly Thr Gly Lys Arg Arg Ala Gln Ile Met
244     340             345             350
246 Glu Asp Leu Asp Arg Trp Ile Asp Gln His Gly Gly Thr Pro Glu Ile
247     355             360             365
249 Pro Ala Ala Leu Lys Ala Leu Ser Thr Ala Ser Leu Ala Asp Leu Pro
250     370             375             380
252 Ser Gly Phe Ser Leu Ser Thr Ala Val Asn Thr Ala Ser Tyr Ile Ala
253 385             390             395             400
255 Ser Thr Tyr Pro Trp Gly Glu Cys Thr Trp Tyr Val Phe Asn Arg Ala
256             405             410             415
258 Lys Glu Leu Gly Tyr Thr Phe Asp Pro Phe Met Gly Asn Gly Gly Asp
259     420             425             430
261 Trp Gln His Lys Ala Gly Phe Glu Thr Thr His Ser Pro Lys Val Gly
262     435             440             445
264 Tyr Ala Val Ser Phe Ser Pro Gly Gln Ala Gly Ala Asp Gly Thr Tyr
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265      450                 455                 460
267 Gly His Val Ala Ile Val Glu Glu Val Lys Lys Asp Gly Ser Val Leu
268 465                 470                 475                 480
270 Ile Ser Glu Ser Asn Ala Met Gly Arg Gly Ile Val Ser Tyr Arg Thr
271                 485                 490                 495
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274                 500                 505                 510
281 <210> SEQ ID NO: 5
282 <211> LENGTH: 1293
283 <212> TYPE: DNA
284 <213> ORGANISM: Streptococcus agalactiae
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289 gatttgggta ttataaataa taaagtgcaa gaaagtgtct ctggcgtcaa agtgactaaa 180
290 tcattgtgtt atcaagaaca agaaattgct tcttttcaag agattaatca gatgactttc 240
291 gtgaagaaca tgcggaccat gacttatgat gtcatgtttg atcctttagt tcttcttttt 300
292 ataggtgcct cctacgtatt aacattggct atgggagctt ttatgatttc aaaaggtcaa 360
293 gttactgttg gtgacttggt aacatttgtg acgtatttag atatgttggt atggcccttg 420
294 atggcgattg gtttcttgtt caatatggta cagcgtggta gtgtttctta taccgtatt 480
295 aatagtctac ttgagcaaga atcggatata actgatcctt taaatcctat caaacctgtt 540
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306 gctgttgtgc acgcagacct tatcttagtt atgcgagacg gcagagtcat tgagcgaggt 1200
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312 <211> LENGTH: 430
313 <212> TYPE: PRT
314 <213> ORGANISM: Streptococcus agalactiae
316 <400> SEQUENCE: 6
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321                 20                 25                 30
323 Glu Glu Val Val Gly Thr Ala Leu Asp Leu Gly Ile Ile Asn Asn Lys
324                 35                 40                 45
326 Val Gln Glu Ser Val Ser Gly Val Lys Val Thr Lys Ser Leu Cys Tyr
327     50                 55                 60
329 Gln Glu Gln Glu Ile Ala Ser Phe Gln Glu Ile Asn Gln Met Thr Phe
330 65                 70                 75                 80
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VERIFICATION SUMMARY   DATE: 02/24/2003
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L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date